

PATHWAYS

VOL. VIII

AUGUST 1986

No. 3

A PROJECT ON PLANTS

—for Class IV (9-10 years olds)

Last year we carried out a project on 'Plants' with students of class IV at our school. Keeping in mind the facts on plants presented in the textbook, we structured the activities around them, hoping to develop in the students additional skills like observation, collection of information, recording of data in a variety of ways including pictographs and maps, gardening and so on. Reference material available to them included books from the school library, newspapers, the Panchtantra stories and some material about the Chipko movement in our country. Integrated into the project were some ideas related to the study of our local environment, science, languages, geography and craft work.

I would like to share with readers of PATHWAYS some of the activities tried out by the children. These were often put down in the form of workcards which were distributed amongst the children. A few samples are given below.

ACTIVITY 1

What kind of trees are seen around your home and school? Observe them and fill up the given columns.

Name of tree	Its Uses	Its Leaf	Its Fruit
	(shade/food/medicine etc.)	(Make a drawing or leaf print)	(Drawing)

Use the above information to make up your own "Book Of Trees"

ACTIVITY 2 : LOOK AT A TREE CAREFULLY

Select any one tree and observe it daily—The following points will help you look at your tree closely :

- * What lives on the bark ?
- * Are there any holes in your tree ? Does anything live there ?
- * How many different kinds of birds do you see on your tree ?
- * Are there insects or other small animals living on or under your tree ?
- * Do any small plants grow around the tree ? Can you find their names ?

[Some students were asked to look at specific trees—like the *neem* tree in front of the music hut. Teacher guidance was then available to help them along.]

ACTIVITY 3 : BARK RUBBINGS

Place a piece of thin white paper on the bark of a tree and go over it with a brown crayon. The pattern of the bark will now be seen on the paper. Try to break off a small piece of bark without damaging the tree. Put these bark rubbings together in your 'Tree Book' and form a pattern. Can you name all the trees from which you took the rubbings?

ACTIVITY 4

Prepare a book cover/a gift wrapping paper or a card, with carbon paper leaf prints and bark or rubbings.

ACTIVITY 5 : HOW OLD IS A TREE ?

Observe the trunk of a cut tree. Try to count the rings formed in the trunk. What do they tell you?

Find out which years were good growing years.

Attach 'flags' to these different rings, and mark on them some important dates.

- e.g.—a. The year the tree started.
b. The year I was born.
c. The year my younger brother/
sister were born.
d. My father bought/constructed
a house.
e. I changed my school.
f. Maharaja Sawai Man Singh
School was built and started.

Write 4 more sentences about these important dates.

ACTIVITY 6.

Draw a pictograph of the trees found in the school campus. Use a key to specify different trees.

Now answer the following questions.

- How many *gulmohar* trees are there?
- How many *neem* trees are there?
- How many eucalyptus trees are there?
- How many '*Adoo*' trees are there?

- What is the total number of trees in the campus?
- Write the colour of their flowers?
- Do the leaves of different trees smell alike?
- The smell of eucalyptus leaf is like.....

ACTIVITY 7

Read at least two Panchtantra tales in your library period. Now make up a short story on trees using your imagination.

ACTIVITY 8

Study 4 herbs in the school garden on the following points.

- Flowering plant.....
- Name of the herb.....
- Stem..... Colour..... Shape.....
- Root—Taproot/adventitious.....
- Leaves—simple/compound..... edge of the blade..... Texture..... Colour..... leaf stalk..... stipules..... axillary bud..... leaf base.....
- Flowers..... Colour..... Number of petals..... Stamens..... Style.....
- Nodes.....
- Internodes.....
- Axillary bud.....
- Fruits.....

ACTIVITY 9

Interview your Hindi/Sanskrit teacher. Find out:

- The names of trees whose leaves are used on auspicious occasions.
- How and why sandal wood is used for Puja?
- Why a paste of *neem* leaves is used for treating boils and dandruff.
- How leaves of the Ashok and Mango trees are used.

ACTIVITY 10

Collect articles and clippings on pollution—

list the types of pollution and the number of stories dealing with each type.

Write two paragraph of about 100 words each discussing the following :

- How you feel pollution is affecting us ?
- What you can do about it ?
- How you think plants can help in reducing pollution ?
- How de-forestation has affected us ?
- How the increase in population is relevant to de-forestation ?

(find articles and clip and paste them with your articles)

Other activities carried out by the children included.

- * growing and observing mould (on a piece of moist bread)
- * looking at mushrooms
- * preparing vegetable beds and planting seeds of brinjals, ladies' fingers, spinach and tomato in them. Every Friday, the children, prepared and enjoyed *pakodas* and sandwiches using the vegetables they had grown. A useful by-product was their overcoming a dislike of eating these vegetables
- * a flower arrangement competition.

On completion of the project the children were evaluated through various kinds of exercise. These included

- * labelling the parts of a plant on a given drawing
- * fill-in-the-blank, true or false and multiple choice type questions which tested their knowledge of technical terms, the parts of a plant and their functions etc.
- * Questions asking them to relate personal experiences, or steps they would take to preserve their own environment,
- * Word puzzles, two of which are given below.

Question : Unscramble these scrambled words.

DESON	LIAX	POMONUDC
PTAOORT	PUITSLES	PROESS
RFNSE	PTILESOE	RNSODE
UNFIG		

Question : A timber contractor is given a contract to provide wood and furnish a new secretariat building, a hospital and a school. So he mercilessly cuts the trees of nearby forest.

Here in the maze you will find the names of fifteen articles which he has to provide in these buildings. Also look for the names of some birds and animals which will lose their homes in the forest. The words may be in a horizontal, vertical or diagonal direction; but their letters will always lie along a straight line.

C	U	P	B	O	A	R	D	S	A	B	P	E	G
H	S	T	L	J	L	K	E	U	K	M	C	F	H
A	U	V	A	I	M	L	S	R	S	K	T	T	K
I	W	X	C	S	A	M	K	T	R	T	R	P	R
R	A	C	K	Q	I	C	S	L	L	A	B	L	O
S	D	F	B	U	R	C	A	T	K	B	L	I	M
P	F	I	O	I	A	L	L	T	V	L	M	S	N
A	N	L	A	R	H	K	T	T	U	E	S	P	P
R	S	E	T	T	S	T	O	O	T	L	T	A	S
R	V	T	D	E	V	N	M	O	S	R	X	R	T
O	K	R	U	L	E	R	S	R	M	T	Y	R	K
T	C	A	B	I	N	E	T	S	R	N	T	O	P
S	L	Y	M	S	R	K	L	M	K	S	O	W	K
R	O	O	F	P	A	V	E	L	L	I	N	G	G
P	E	A	C	O	C	K	S	N	T	T	L	B	A
T	E	K	R	R	B	E	D	S	S	R	K	P	N
L	L	A	O	W	L	O	X	V	O	T	K	O	T
O	O	P	W	K	W	F	Y	V	X	I	I	O	L
N	T	T	S	L	M	T	K	W	L	P	L	L	O

—Anjali Roy Choudhury
Maharaja Sawai Man Singh Vidyalaya, Jaipur

LEARNING GAMES CHILDREN WILL ENJOY

Games to Develop Skills In Using Reference Materials

A. Using A Dictionary

1. This game may be played between two teams of 3-5 students each. Another student acts as the moderator. Each player has a dictionary. The moderator is supplied with a pack of 25-30 cards, bearing words whose meanings the children must seek. The moderator shuffles the cards, selects one and writes the word on the blackboard. Teams race to find its meaning. When the word is located, the player raises his/her hand. He/she is asked to tell the page on which the word is found and the first meaning listed in the entry. If correct, the team scores a point. If incorrect, the opposing team may give the correct answer and score a bonus point. When neither team finds the word, the moderator must be able to do so. Hence, choose a student who is proficient in the use of the dictionary for this role.

Suitable for upper primary and middle school classes, you could allow students to play this game when classwork is completed and there are a few minutes to spare. Try it at the start of a new lesson, using all the difficult words contained therein. If the pupils get interested, you might like to leave a few sets of cards around in the classroom for them to play during the school break—an excellent way of expanding their vocabulary.

2. Here is a variation of the game which can become an informal revision of parts of speech as well. This time write sentences on the cards. e.g.

He was still a novice at the game.

The colonel interrogated the spy.

The precocious child won the contest.

The moderator reads out the sentence and spells out the underlined word. The word may, if desired, also be written on the blackboard. The teams race to locate the word in the dictionary, its meaning and the part of speech it represents as used in the given sentence.

3. The Word Wheel needs a little preparation. Write all the letters of the alphabet on a strip of paper. Paste this strip along the outer edge of a circular cardboard disk. Arrange a freely spinning arrow at the centre and the wheel is ready.

If you find this inconvenient, use a rectangle of cardboard or chart paper. Write the letters of the alphabet inside squares drawn on the chart. You can leave a few squares blank also.

Spin the arrow over the wheel or toss a coin on the chart. This helps select a letter of the alphabet. A throw of dice (two together) gives the number of letters in the word.

The teams now compete to find as quickly as possible, a word starting with the selected letter and having the required number of letters.

e.g. using the letter "e", a word with 8 letters may be "elephant". A word with 10 letters may be "extinguish"

To make the game more demanding, set a time limit of 1-2 minutes for each try, and let the moderator watch the clock.

Older children may be asked to use the word in a sentence. In such a case the teacher's help may be needed to ensure that the answer is wholly correct. Marks be allocated separately for finding the word and using it correctly.

B. Using Newspapers, Encyclopaedia and Other Sources of Information

Ask your librarian for help in this game. Each team (3-5 players) shares out the work amongst team members. They are set the task of finding answers within a set time to a list, of say, 20 questions, from materials available in the library. Each team has a separate list. Before starting the librarian may, if needed, familiarize them with the location of various categories of books found in the school library.

Questions may include some like these.

1) What is bilharziasis ?

- 2) Which is the 6th planet of the solar system ?
- 3) What do the letters UNDP stand for ?
- 4) What is alliteration ?

When a team finishes, they may use a prepared answer sheet for a quick self-evaluation of their findings. In noting down the answers the team must write them down neatly in correct sequential order and indicate the source of their information—viz : the name of the book, volume number, page etc. This allows the teacher to do a quick spot check on their work.

Board Games

C. Young children thoroughly enjoy board games like Ludo or Snakes And Ladders. With a little advance preparation you can convert this into an opportunity for revision of a variety of concepts in science, social studies and mathematics. A simple 10×10 board with the numbers 1 to 100 written in the squares may also be used.

A throw of two dice indicates how many squares a player may move at each turn. To start he/she must throw at least one '6'. A selected number of squares are shaded in a different colour say red. If a player lands on one of these he/she has to pay a penalty. For Snakes And Ladders, squares where a "snake" starts are the obvious choice for penalty squares. The penalty takes the form of a question in the subject.

e.g. Is the brinjal a fruit ? Yes/No ?

- * Name three diseases caused by drinking impure water
- * Which insect spreads malaria ?
- * What is 3×45 ?
- * Express $\frac{3}{4}$ as a decimal
- * 420 apples cost Rs. 42/- what does each cost ?
- * How many states are there in India ?
- * What is the capital of Gujarat ?

and so on. The questions must, obviously, be tailored to suit the class that is playing the games.

If the question is answered correctly, the player remains at the same square. If not he/she is asked to go back by a specified number of

squares (or slide down to the snake's tail).

The penalties may be written on the squares if the board is large enough. Alternatively they may be written out on cards numbered to correspond to the squares. To add another element of chance a set of penalty cards (without any numbers) may be shuffled and kept. When a player lands on a penalty square he/she may pick up any of these cards at random and answer the question or pay the penalty.

Usually the other players should be able to judge if the answers are correct or not. In case of doubt, any other player may challenge the validity of an answer and the teacher can act as referee.

Corresponding to the "ladders" of Snakes And Ladders, some cards on the board may be coloured "green". Instructions to players landing on these squares could send them forward by a specified number of squares.

Usually a board can accommodate up to six players, but four is an ideal number.

Children would enjoy these games on a rainy day when forced to remain indoors or during a free period.

The same board may be used for games in different subject areas—only the sets of penalty cards need to be changed.

Make multiple sets available to the children. Either use commercially available boards (Snakes And Ladders) or paste the number squares on cardboards or thin plywood for greater durability.

If you would like to make the games for specific subjects, the boards may be made with different shapes and varied coloured backgrounds.

The path to be followed by the players is then superimposed on this background as a trail of numbered squares.

- e.g. *
- * Use a map of India board for History or Civics
 - * Use a mountain, a waterfall or a volcano for a geography game
 - * Use an animal shaped board for a game on animals—their names, adaptations and habits.

LOW-COST LABORATORY EQUIPMENT FOR SCIENCE TEACHING

Teachers of Chemistry and Physics, especially at the plus-two stage would be delighted to learn about a project that has been under way at the Department of Chemistry, Delhi University, for the past few years. Concerned about the non-availability of simple, low-cost instruments for demonstration and practical work, a group of dedicated teachers and students has been working on the design and fabrication of some of them. They have so far, successfully designed and tested inexpensive versions of several instruments and accessories like P_H meters, conductometers, polarimeters, colorimeters, conductance cells, electronic timers and thermometers, and magnetic stirrers. Electronic components available in India have been used and found to be durable, safe and versatile. Some components like carbon electrodes from discarded dry cells, glass test-tubes and thermocole packing have been re-cycled and effectively used.....at no cost! Several versions of instruments like the P_H meter have been developed keeping in mind both the cost and the degree of accuracy needed for certain experiments. Thus the eight versions of the P_H meter range in price from about Rs. 150/- to Rs. 600/-. These include a version suitable for use in schools. The price are one-quarter to one-tenth of the market price of commercially produced instruments, making it possible for school/undergraduate laboratories to buy them easily. This low cost has not however, been obtained at the expense of precision or quality. The instruments have been field-tested in several college laboratories, both within and outside India, and found satisfactory.

An important fall-out of the pilot project has been the interdisciplinary approach adopted by the team. Physicists and others with a knowledge of electronics helped in the design of circuitry. Fabrication involved acquiring of

manipulative skills needed in the assembly of all the parts. Testing and exploring the variety of uses for each instrument brought together people from the areas of physics, chemistry and even biology. All of them faced several difficulties along the way and sharpened their problem-solving skills in trying to overcome them.

The enthusiasm of the teachers and students involved in the project kept them voluntarily at the laboratories over week-ends and even during vacations. Over the past year, Dr. K. V. Sane, who leads the team, has had several school-level experiments tried out. He feels that the students in plus-two stage would gain valuable practical experience in carrying out project work of this type. They could learn how to design simple instruments suitable for projects they would like to try out; they could learn how to use materials and tools of different kinds as they assemble instruments and they would acquire basic research-oriented skills when they use these instruments. Perhaps the readings obtained are not what were expected. Why? Is there a defect in the design of the experiment? the instrument? the method of using the instrument?

Teachers who are interested in knowing more about this project are advised to get in touch with.

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He would welcome genuine enquiries from teachers who are willing to get involved, get themselves trained, and encourage their students to carry out trials with these instruments.

भाषा ज्ञान : खेल-खेल में

क्या विचारों और भावाभिव्यक्ति का एक स्पष्ट एवं सशक्त माध्यम है। किसी भी भाषा को सत्तर सम्भाषण या वार्तालाप के द्वारा जितनी सफ़लता से सीखा जा सकता है उतना किसी अन्य माध्यम द्वारा सम्भव नहीं।

ई. पी. जी. द्वारा संचालित तीन सप्ताह की "हिन्दी शिक्षण कार्यशाला" के अन्तर्गत कतिपय खेलों का समावेश किया गया। इन खेलों द्वारा प्रत्याशियों को सामान्य भाषा का सही प्रयोग सीखने एवं अपने शब्द-भण्डार का विस्तार करने में आशातीत सफलता प्राप्त हुई। गहन व्याकरण शिक्षण के पश्चात् एक छोटे से खेल द्वारा प्रत्याशियों में एक नवीन स्फूर्ति एवं उत्साह भर जाता, तथा बिना किसी प्रयास के अनायास ही नवीन शब्दों का सही ढंग से प्रयोग करना उन्हें आ जाता। यहाँ कुछ खेलों को खेलने की विधि उद्देश्य के साथ दी जा रही है। यद्यपि प्रस्तुत खेलों का समावेश उन शिक्षकों को हिन्दी सिखाने के लिए किया गया था, जिन्हें हिन्दी भाषा का बहुत ही सूक्ष्म ज्ञान था और वे हिन्दी का इतना ज्ञान अर्जित करना चाहते थे कि हिन्दी के माध्यम से पहली से पाँचवीं कक्षा के छात्रों को विज्ञान एवं गणित की शिक्षा दे सकें।

प्रस्तुत खेलों का प्रयोग हिन्दी के अध्यापक कक्षा में हिन्दी शिक्षण के समय आवश्यकतानुसार थोड़ा परिवर्तन करके कर सकते हैं। इनके द्वारा भाषा को सही रूप में बोलना सिखाने में आश्चर्यजनक सफलता प्राप्त की जा सकती है।

१. हुक्म बजाओ

शिक्षक क्रमशः जल्दी-जल्दी कुछ करने का आदेश दें। छात्रों को उन्हें कार्यान्वित करना होगा। जो समय पर आदेश का पालन नहीं कर पाएगा वह खेल से अलग हो जाएगा।

आदेश—प्रपना आँखें मूँदिए। तीन बार घूम जाइए। अपने साथी के कन्धे पर हाथ रखिए। जोर से हँसिए। अपने साथी के बाएँ कान को अपने दाएँ हाथ से छुँइए। दोनों हाथों को जोड़िए। मुस्कराए।

अपने साथी के बालों को सहलाइए। अपने बाएँ हाथ हाथ से दायाँ कान पकड़िए।

उद्देश्य—आदेश को ध्यान से सुनना, समझना और उसका पालन करना।

२. मैं कौन हूँ ? मेरा नाम क्या है ?

प्रत्येक प्रत्याशी की पीठ पर कागज के छोटे-छोटे टुकड़ों पर किसी कारीगर, कलाकार या व्यवसायी का नाम लिख कर आलपिन से लगा दिया जाए जिसे वह प्रत्याशी न देख पाए। हाँ अन्य प्रत्याशी उसे देख लेंगे परन्तु बताएँ नहीं। इस प्रकार प्रत्येक प्रत्याशी अपनी पीठ पर चिपके कागज पर क्या लिखा है यह जान नहीं पाएगा। हर एक प्रत्याशी अपने निकट के प्रत्याशी से अपने बारे में अनुमान लगा कर प्रश्न पूछेगा। साथी "हाँ, नहीं या हो सकता है" में ही उत्तर देगा।

उदाहरण—क्या मैं पढ़ाती हूँ ? क्या मेरा सम्बन्ध किताबों से है ? क्या मैं सामान बेचता हूँ ?

उत्तर—हाँ। क्या मैं खाने पीने का सामान बेचता हूँ ?

उत्तर— हो सकता है ? क्या खाने पीने की चीजें पकी हुई हैं ? आदि-आदि।

उद्देश्य—प्रश्न बनाने का अभ्यास। नये शब्दों का ज्ञान।

३. प्रत्याक्षरी

यह एक बहुत प्रचलित खेल है। सामान्य रूप से जैसा इसके नाम से ही स्पष्ट होता है कि कविता या गाने के अन्तिम अक्षर से आरम्भ होने वाली कविता या गाना सुनाया जाय। इसे केवल शब्दों द्वारा भी खेला जा सकता है जिसमें शब्द के अन्तिम अक्षर से आरम्भ होने वाले शब्द बोले जाएँ या शब्दों को भी क्रिया शब्द विशेषण या या संज्ञा शब्दों तक सीमित किया जा सकता है। इसको खेलने के लिए प्रत्याशियों को दो दलों में बाँट दिया जाता है। यह प्रतियोगिता के रूप में खेला जाती है उसमें बड़ा आनन्द आता है और मन हल्का हो जाता है।

उद्देश्य—१. कविता याद करने एवं सस्वर सुनाने में प्रोत्साहन।

२. नये शब्दों का ज्ञान एवं स्मरण व्याकरण के अनुसार शब्दों के संज्ञा, विशेषण क्रिया रूपों को पहचान होने में सहायता मिलती है।

४. अव्यवस्थित कमरा

प्रत्याशियों के कमरे में प्रवेश करने से पहले कमरे की चीजों को अपने स्थान से हटा कर अव्यवस्थित कर दिया जाय। बाद में कमरे में प्रवेश करने पर उन्हें बतलाना है कि कमरे में कौन सी वस्तुएँ अपने स्थान पर नहीं हैं और उन्हें कहां और कैसे रखा जाना चाहिए। इसे भी प्रत्याशियों को दो दलों में बाँट कर अव्यवस्थित चीजों की सूची बनवाई जा सकती है जिसकी सूची लम्बी होगी वह जीतेगा।

उद्देश्य—नवीन शब्दों का ज्ञान एवं उनका उचित ढंग से वाक्यों में प्रयोग।

५. वाक्य बनाओ

श्याम पट्ट (black board) पर बहुत से शब्द शब्द लिख दिये जायेंगे। वे अव्यवस्थित क्रम में होंगे।

वे अव्यवस्थित क्रम में होंगे। उन्हें जोड़ कर सही वाक्य बनाना। इसे मौखिक या लिखित दोनों रूपों से लिखाया जा सकता है।

उदाहरण—१. दिल्ली सड़क की चलती पर बसें हैं।

दिल्ली की सड़क पर बसें चलती हैं।

२. है बस रेल पटरी सड़क पर खड़ी लेकिन चल रही है पर।

इनमें शब्दों के शुद्ध चयन द्वारा वाक्य बनाना है।

उद्देश्य—वाक्य रचना के लिए शब्दों का सही क्रम से रखना। इसके अन्तर्गत यह भी बताया जा सकता है कि शब्दों के क्रम बदलने से वाक्य का अर्थ भी बदल जाता है। इसके लिए 'हो' 'भी' आदि के प्रयोग अलग-अलग प्रत्याशों से करवाए जा सकते हैं। जैसे—(इस + ही) लड़के ने मेरी किताब चुराई है।

इस लड़के ही ने मेरी किताब चुराई है।

इस लड़के ने मेरी ही किताब चुराई है।

इस लड़के ने मेरी किताब ही चुराई है।

इस लड़के ने मेरी किताब चुराई ही है।

६. कविता में बात करो :—

साधारण वाक्य को कविता में बदलना। इसे

प्रत्याशियों को दो दलों में विभाजित करके खिलाया जा सकता है।

जैसे—फूल बाग में खिल रहे हैं। (गद्य की पंक्ति को कविता में बदलना)

दल अ—खिल रहे हैं फूल बाग में।

दल ब—फूल हैं खिल रहे बाग में।

दल अ—बाग में हैं फूल खिल रहे।

दल ब—फूल खिल रहे हैं बाग में।

दल अ—बाग में खिल रहे हैं फूल।

उद्देश्य—शब्दों के स्थान परिवर्तन द्वारा वाक्य में ध्वन्यात्मकता लय एवं गति उत्पन्न करना जो काव्य रचना के लिए अभीष्ट है।

७. खजाने की खोज

यह भी एक प्रचलित खेल है जिसमें सुराग की सहायता से छिपे हुए खजाने को ढूँढते हैं। इस खेल में प्रत्याशियों को कई दलों में बाँट कर प्रत्येक दल के लिए अलग-अलग सुराग दिए जाते हैं जिनके रास्ते भी अलग-अलग होते हैं परन्तु सब खजाने तक पहुँचते हैं। सुराग को ठीक से पढ़कर आगे बढ़ना होता है। जो दल सबसे पहले खजाने तक पहुँचता है वह जीता हुआ माना जाता है।

उद्देश्य—इसके द्वारा कारक चिह्नों का प्रयोग करना, दिशा निर्देश समझना आदि सिखाया जा सकता है। जैसे—मेज पर रखी किताब के बीच में, दाएँ मुड़कर दो कदम चलकर दाहिने ओर के कोने में रखी अलमारी के अन्दर आदि निर्देशों को समझना।

८. नदियाँ गहरी में इस पार, बोली कंसे उतर पार ?

श्याम पट्ट (Black Board) पर एक नदी बना दी जाएगी। आप श्रुतलेख के शब्द बोलिए, नदी पार करने के लिए शब्द सही तरह से लिखना होगा। यदि शब्द सही हुआ तो ज्ञान गंगा पार नहीं तो डूब कर खेल से बाहर। जो प्रत्याशी सबसे अधिक सही शब्द लिखेगा वही विजयी होगा।

उद्देश्य—शब्दों को सुनकर सही लिखने का अभ्यास।

९. क्या चीज खो गई है ?

विभिन्न प्रकार की चीजें एक स्थान पर इकट्ठा करके रख दें। पहले एक मिनट का समय वस्तुओं के अवलोकन के लिए दिया जाए बाद में प्रत्याशी कमरे के बाहर चले जाएँ। तब कुछ वस्तुएँ हटा कर छिपा दी जायें। प्रत्याशियों को बुला कर फिर से चीजें

दिखाई जायें और पूछा जाए कि कौन सी चीजें खो गई हैं ? इसे लिखवा कर भी करवाया जा सकता है। वस्तुओं के अभाव में चार्ट पर बहुत-सी वस्तुओं के नाम लिख कर दिखाया जाए बाद में दूसरा ऐसा चार्ट दिखाया जाए जिसमें कुछ चीजों के नाम नहीं लिखे गए हैं। जो प्रत्याशी सबसे अधिक सही उत्तर देगा वह जीतेगा।

उद्देश्य—सहज रूप में प्रत्याशियों को नए शब्द को दिखाकर उनकी स्मरण शक्ति की परीक्षा लेना।

१०. शब्द सीढ़ी—

कुछ ऐसे जातिवाचक संज्ञा शब्द दिए जिनमें अनेकों नाम आ सकते हैं। उसमें यह देखना होगा कौन सबसे अधिक नाम बता सकता है।

उदाहरण—फल—आम, केला, संतरा, मौसम्बी, अनार, अंगूर।

तरल पदार्थ—तेल, दूध, शरबत, चाय, काफी, ठंडाई।

उद्देश्य—शब्द भण्डार में वृद्धि करना।

११. ध्यान से सुनो और चित्र बनाओ—

किसी दृश्य या व्यक्ति का शब्द विवरण सुन कर चित्र बनाना।

उदाहरण—तीन ऊँचे पहाड़ हैं। उनके पीछे सूरज उग रहा है। सबरे का सूरज लाली लिए हुए है। नीले आकाश में चार पक्षी उड़ रहे हैं। कहीं-कहीं पर सफ़ेद बादल भी हैं। पर्वतों की तलहटी में एक नदी बह रही है। जिसमें नाव तैर रही है। नदी के किनारे दो बच्चे पतंग उड़ा रहे हैं। नदी के किनारे पर ऊँची-ऊँची घास है।

उद्देश्य—भाषा को सुनकर समझना और भाव को चित्र में परिणत करना।

१२. चित्र को देखकर उसका वर्णन करना—

किसी प्राकृतिक दृश्य या व्यक्ति के भाव चित्रांकित क्रिया कलापों का वर्णन करना। वर्णन लिखित लिखित या मौखिक रूप से हो सकता है।

उद्देश्य—भाषा द्वारा भावों या विचारों की अभिव्यक्ति की श्रमता का विकास करना।

१३. मूक अभिनय को शब्द दो—

दो या तीन व्यक्तियों द्वारा किए गए मूक अभिनय का वर्णन करना।

उद्देश्य—अभिव्यक्ति की क्षमता का विकास।

१४. चित्र देखकर कहानी बनाना—

किसी चित्र को प्रत्याशियों को दिखाएँ। प्रत्येक से उसकी कहानी बनवाई जाए। यह कार्य लिखित

एवं मौखिक रूप से किया जा सकता है।

उद्देश्य—कल्पना को शब्दों में अभिव्यक्ति देने का अभ्यास।

१५. कहानी को क्रमबद्ध रूप देना—

किसी प्रचलित कहानी को असम्बद्ध रूप में टेप रिकार्डर पर सुनवाया जाय। फिर प्रत्याशी उस उस कहानी को क्रमबद्ध रूप से सुनाए या लिखे।

उद्देश्य—विचारों या घटनाओं को याद रख क्रमबद्ध रूप में बांधना।

१६. किसी एक पंक्ति को बढ़ाकर कहानी का रूप देना -

प्रत्याशी एक-एक पंक्ति जोड़ कर एक कहानी बनाए।

१७. संवाद—

किसी घटना या परिस्थिति को संवाद में परिवर्तित करके उसकी अभिनीत करना। 'सब्जी खरीदने जाना'—संवाद रूप में अभिनय करना।

उद्देश्य—भावानुरूप भाषा शुद्ध भाषा बोलने का अभ्यास।

१८. सोचिए और करिए—

कई शब्द दिये जायें जिनमें कई शब्दों का लगभग समान अर्थ जैसे ताप, आँच, गर्मी, नमी, इनमें समान अर्थ वालों पर प्रत्याशी ✓ का निशान लगाए।

उद्देश्य—शब्द ज्ञान में वृद्धि।

१९. शब्दों के सही अर्थ चुनना—

दिए गए शब्दों के सही अर्थों को प्रत्याशी चुनकर लिखेंगे। जैसे—निम्नलिखित, छोटी लिखाई, नीचे लिखा हुआ, नीम से लिखा।

उद्देश्य—शब्दों के सही अर्थ जानना।

२०. संख्याओं का खेल—

हिन्दी की संख्याओं को बोलना समझना एवं प्रयोग करना सीखने के लिए यह खेल सहायता दे सकता है। सभी प्रत्याशियों को शब्दों की संख्या लिख कर दिये जायें। ये संख्याएँ बीस खानों में लिखी जायेंगी। प्रत्येक प्रत्याशी की संख्या का क्रम भिन्न होगा। शिक्षक संख्या बोलेंगे जो क्रम से नहीं होगी। प्रत्याशी के खाने में यदि संख्या लिखी है तो वह उसके नीचे उस संख्या को अंक में लिख देगा। यह क्रम चलता रहेगा जिस प्रत्याशी की संख्या सबसे पहले पूरी होगी वह विजयी माना जाएगा। यह 'हाडजी' का ही परिवर्तित रूप है।

उद्देश्य—हिन्दी की संख्याओं का ज्ञान प्राप्त करना।

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गहन हिन्दी शिक्षण	-	सांचा अभ्यास	रु० १०.००
गहन हिन्दी शिक्षण	-	अभ्यास	रु० ५.५०
गहन हिन्दी शिक्षण	-	पाठ	रु० ५.५०

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यह पुस्तक तीन भागों में है। प्रथम भाग सांचा अभ्यास नाम से है। इसमें भाषा सिखाने की पारम्परिक पद्धति से हट कर एक नया तरीका प्रयोग में लाया गया है। भाषा के व्याकरणिक अंग कर्ता, कर्म, लिंग, वचन एवं क्रिया के विभिन्न रूप एवं कालों को एक विशेष पद्धति (Pattern) में बांध कर प्रस्तुत किया गया है। इसमें पुनरावृत्ति के द्वारा अभ्यास पर अधिक जोर दिया गया है जो तनिक ऊबाने वाला होते हुए भी उपयोगी हैं।

दूसरा भाग प्रथम भाग के सांचे या Pattern पर दिए गये वाक्यों को रिक्त स्थान पूर्ति, प्रश्नोत्तर, रूप परिवर्तन आदि द्वारा अभ्यासों के देते हुए लिखा गया है। इसमें एक बार शिक्षक के समझाने पर बहुत कुछ अभ्यास शिक्षार्थी स्वयं करने में समर्थ हो सकता है। इस पुस्तक का प्रत्येक अभ्यास "सांचा अभ्यास" पुस्तक के पूरक रूप में है।

इसी शृंखला की तीसरी पुस्तक 'पाठ' रूप में है। जो कुछ सांचा अभ्यास पुस्तक में दिया गया है उसी से संबन्धित वाक्य वार्तालाप या संवाद के माध्यम द्वारा मनोरंजक बनाने का प्रयास किया गया है। जो अनायास ही विद्यार्थी की भाषा को व्यवहार में लाने के लिए उत्साहित करती है साथ ही कुरवद्ध रूप से मार्गदर्शन करता है। ये पुस्तकें बालकों के लिए हिन्दी शिक्षण की दृष्टि से नहीं लिखी गई है वरन् इसका उद्देश्य प्रौढ़ शिक्षार्थियों को हिन्दी सीखने के लिए एक क्रमवद्ध वैज्ञानिक पद्धति से भाषा ज्ञान देना है। साथ ही माध्यमिक कक्षाओं के उन विद्यार्थियों के लिए भी यह पुस्तकें लाभदाई होगी जिनकी मातृभाषा हिन्दी नहीं है।

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ASKING MEANINGFUL QUESTIONS IN SCIENCE-II

In an earlier issue of PATHWAYS (August 1984), I had described in detail a variety of questioning techniques, which could be used by teachers—not only in science teaching, but perhaps, with a little thought, in other subjects as well. That material formed the basis on which we, at the EPG, were able to conduct many workshops for teachers orienting them into different ways of asking questions. As a follow-up to the first article, here are some questions aimed at you (the teacher), which help you to analyze the kind of questions you set. This is by no means an exhaustive list; it is merely intended to remind you to think carefully about what you are asking your students.

—Gayatri Moorthy

- I. Miss B has done the following problem with her students in class : A basket contains 14 mangoes and 22 apples. How many fruit does it contain ?

In the monthly test she sets the following question :

A basket contains 63 oranges and 24 guavas. How many fruit does it contain ?

- i) Is Miss B testing her students at the level of knowledge, understanding or application ?
 - ii) Can you suggest any alternative question that she might ask ? Why is it a better question ?
- II. Mr. D sets these questions in the monthly test. What kind of answers should he expect ?
- i)and.....lie to the East of the school gate.
 - ii)and.....are winged insects.
 - iii)and.....are carbohydrate foods.
 - iv)and.....are TV programmes I like.

- III. Can you spot a possible difficulty children might face in answering this question ?

Match the following :

A	B
i) root	a. grows from the flower
ii) stem	b. produces food
iii) leaf	c. found on stem
iv) flower	d. carries food to different parts
v) fruit	e. grows underground.

- IV. The use of names for peoples/places, of common everyday situations makes questions more interesting for your students. Can you answer the following quickly ?

- i) Name four liquids that your student is familiar with apart from water.
- ii) Likewise, name four salty foods.
- iii) Name four powders.
- iv) Name four insects.
- v) Identify two situations where children can **practise** rules of safety/hygiene.
- vi) Identify two situations where children can **practise** sharing.
- vii) Identify two situations where children observe a solid dissolving in a liquid.

Can you now make up questions that you might ask your students—orally or in writing—based on sections v, vi and vii.

- V. The chapter you have just finished in class has a number of new words—many of them technical—with difficult spellings. Think of an interesting way to test children on these words; their spellings, their meanings and their usage.

- VI. Suggest **practical** tests which will help you find out if your students :

- i) are able to correctly label the parts of a plant
- ii) are able to dispose of garbage in an appropriate way
- iii) are able to measure accurately the length of small objects (between 5-10 cm).

BRAIN-TEASERS

Sometimes you get in the way of your own brain. Your thinking gets stuck. Sometimes you build your own mental walls. Then you keep bumping into them. Sometimes you don't see what is under your very nose. At other times, you wear mental blinders which leave you with tunnel vision, unable to see anything that is on the periphery. Try avoiding these traps as you attempt to solve these problems.

Problem No. 1 : THE SIX GLASSES PROBLEM

This is a practical exercise for which you need six glasses—three empty and three containing water. Line them up in this order : 1...2...3...4...5...6 so that glasses 1, 2, 3 contain water, while 4, 5 and 6 are empty. You may now touch and move only one glass and are required to change the line-up so that no empty glass is next to another empty and no full glass is next to another full glass.

Problem No. 2 : FACE TO FACE

Try this one out practically too. You need one sheet of newspaper. Figure out how two people can stand on the same sheet, face to face, so that they can't possibly touch each other.

Hint : Their hands are not tied, and you can't tear the paper.

Problem No. 3 : PLAYING PING-PONG

You are playing ping-pong (table-tennis if you prefer) with your friend. The ball bounces away and rolls into a deep hole in the floor. It's too narrow and too deep for you to be able to take the ball out with your hand. There aren't any long sticks lying around conveniently. What can you do to retrieve the ball ?

Problem No. 4 : TOOTHPICK TANGLES

Try these : i. Use **NINE** toothpicks to make **TEN**.

ii. Use **SIX** toothpicks to make **ZERO**.

iii Use toothpicks to show that half of **ELEVEN** is **SIX**.

Problem No. 5 : WHAT COMES NEXT ?

At first some easy ones. Complete these.

A, B, C, D, E, —, —, —, ...

A, B, A, C, A, D, A, —, —, —, ...

A, D, G, J, M, —, —, —, ...

Now try these. If your blinkers are not on, the answers are quite sensible :

O, T, T, F, F, —, —, —, (It goes on forever)

M, T, W, T, —, —, —, —, (It stops here.)

J, F, M, A, M, —, —, —, —, —, —, —, —, (This also stops here).

Answers on page 13.

Probably the greatest "secret" of a good teacher is the ability to get children to want to learn. Properly motivated pupils learn without being coerced because, for them, learning is rewarding.

This is not to say that learning need not involve hard work. However, even vigorous activity is fun if it is satisfying. Think of the physical exertion during a ball game and the mental effort in solving a puzzle or playing checkers!

Pupil become motivated when they participate in activities which are rewarding to them. The rewards, however, must be immediate, or nearly so; long-range goals have little meaning for young children. The teacher, nonetheless, must keep the ultimate aims in view, realizing that they can be attained, in part, by having pupils do things intriguing to them.

This is a story

about four people,
named
EVERYBODY, SOMEBODY, ANYBODY and
NOBODY

There was an important job to be done
and EVERYBODY was sure
that SOMEBODY would do it.

ANYBODY could have done it,
but NOBODY did it.

SOMEBODY got angry about that,
because it was EVERYBODY'S job.

EVERYBODY thought
that ANYBODY could do it,

but NOBODY realised
that EVERYBODY wouldn't do it.

It ended up that
EVERYBODY blamed SOMEBODY

When NOBODY did

What ANYBODY could have done.

Answers to Brain-Teasers

Problem No. 1 : THE SIX GLASSES PROBLEM : Pick up glass 2. Pour the water from glass 2 into glass 5 and put 2 back in its place. No one said you couldn't pour the water ! Did you have your blinders on?

Problem No. 2 : FACE TO FACE : Place the sheet of newspaper in a doorway, so that half is on one side of the door, and half is on the other side. If the door is closed, the two people certainly cannot touch each other.

Problem No. 3 : PLAYING PING-PONG : Fill the hole with water and the ball will float up.

Problem No. 4 : TOOTHPICK TANGLES : (i) **TEN** (ii) Try making a rectangular figure of 'O'
(iii) Eleven is **XI**. Divide it horizontally into half and what do you have ?

Problem No. 5 : WHAT COMES NEXT :

- i) It's the good old English alphabet.
- ii) **A, B, A, C, A, D**, will be followed by **A, E**, then **A, F**, and so on...
- iii) Form this series jumping three letters at a time viz. **A, D, G, J, M, P, S, V, ...**
- iv) Try stringing together the first letters of **One, Two, Three, Four, Five.....**
- v) This time it's the day of the week : **Monday, Tuesday, Wednesday.....**
- vi) Finally, it's the months of the year : **January, February.....** We hope you had fun.

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160, Anna Salai, Madras-600 001

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S. P. Verma Road, Patna-800 001

Printed at : Adarsh Printers, Kotla Mubarakpur, New Delhi-110003,
for the Educational Planning Group, 4, Raj Niwas Marg, Delhi-110054

Phones : 692139, 624140